

THE UNITED STATES PATENT AND TRADEMARK OFFICE

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WHAT IS CLAIMED IS:

1. An isolated polynucleotide comprising:
  - a) a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:2;
  - b) a nucleotide sequence encoding a polypeptide comprising amino acid residues 72-93, 147-162, 191-211 OR 217-238 of SEQ ID NO:2;
  - c) a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:4;
  - d) a nucleotide sequence encoding a polypeptide comprising amino acid residues 55-76, 132-150, 177-199 or 213-234 of SEQ ID NO:4;
  - e) a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:6;
  - f) a nucleotide sequence encoding a polypeptide comprising amino acid residues 47-68, 123-138, 167-187 or 193-214 of SEQ ID NO:6;
  - g) a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:8;
  - h) a nucleotide sequence encoding a polypeptide comprising amino acid residues 46-67, 122-140, 166-187 or 194-213 of SEQ ID NO:8;
  - i) a nucleotide sequence encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:9;
  - j) a nucleotide sequence encoding a polypeptide comprising amino acid residues 77-98, 153-167, 197-217 or 223-242 of SEQ ID NO:9;
  - k) nucleotides 232-1599, 445-513, 670-717, 802-864 or 880-945 of the nucleotide sequence of SEQ ID NO:1;

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- 1) nucleotides 83-1669, 245-310, 476-532, 611-679  
or 719-784 of the nucleotide sequence of SEQ  
ID NO:3;
- 5 m) nucleotides 247-1530, 385-450, 613-660, 745-  
807 or 823-888 of the nucleotide sequence of  
SEQ ID NO:5; or
- n) nucleotides 205-1599, 340-395, 568-624, 700-  
765 or 784-843 of the nucleotide sequence of  
SEQ ID NO:7.
- 10 2. An isolated polynucleotide which hybridizes to the complement of the polynucleotide of Claim 1 under stringent hybridization conditions.
- 15 3. An isolated polynucleotide which comprises the complement of the polynucleotide of Claim 1.
4. A vector comprising the isolated polynucleotide of Claim 1 or 2.
- 20 5. An expression vector comprising the isolated polynucleotide of Claim 1 or 2.
6. A host cell genetically engineered to contain the polynucleotide of Claim 1 or 2.
- 25 7. A host cell genetically engineered to contain the polynucleotide of Claim 1 or 2 in operative association with a regulatory sequence that controls expression of the polynucleotide in the host cell.
- 30 8. An isolated polypeptide comprising:
- a) the amino acid sequence of SEQ ID NO:2;
- b) amino acid residues 72-93, 147-162, 191-211 OR  
217-238 of SEQ ID NO:2;
- c) the amino acid sequence of SEQ ID NO:4;
- d) amino acid residues 55-76, 132-150, 177-199 or  
213-234 of SEQ ID NO:4;

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- e) the amino acid sequence of SEQ ID NO:6;
  - f) amino acid residues 47-68, 123-138, 167-187 or 193-214 of SEQ ID NO:6;
  - g) the amino acid sequence of SEQ ID NO:8;
  - h) amino acid residues 46-67, 122-140, 166-187 or 194-213 of SEQ ID NO:8;
  - i) the amino acid sequence of SEQ ID NO:9; or
  - j) amino acid residues 77-98, 153-167, 197-217 or 223-242 of SEQ ID NO:9;
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9. A composition comprising the polypeptide of Claim 8 and a carrier.
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10. An antibody directed against the polypeptide of Claim 8.
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11. A method for detecting a polynucleotide of Claim 1 or 2 in a sample, comprising:
- a) contacting the sample with a compound that binds to and forms a complex with the polynucleotide for a period sufficient to form the complex; and
  - b) detecting the complex,  
so that if a complex is detected, a polynucleotide of Claim 1 or 2 is detected.
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12. A method for detecting a polynucleotide of Claim 1 or 2 in a sample, comprising:
- a) contacting the sample under stringent hybridization conditions with nucleic acid primers that anneal to a polynucleotide of Claim 1 or 2 under such conditions; and
  - b) amplifying the annealed polynucleotides,  
so that if a polynucleotide is amplified, a polynucleotide of Claim 1 or 2 is detected.
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13. The method of Claim 12, wherein the polynucleotide is an RNA molecule that encodes a polypeptide of Claim 8, and

the method further comprises reverse transcribing an annealed RNA molecule into a cDNA polynucleotide.

14. A method for detecting a polypeptide of Claim 8 in 5 a sample, comprising:

- a) contacting the sample with a compound that binds to and forms a complex with the polypeptide for a period sufficient to form the complex; and
- c) detecting the complex,

10 so that if a complex is detected, a polypeptide of Claim 8 is detected.

15. A method for identifying a compound that binds to a polypeptide of Claim 8, comprising:

- a) contacting a compound with a polypeptide of Claim 8 for a time sufficient to form a polypeptide/compound complex; and
  - b) detecting the complex,
- so that if a polypeptide/compound complex is detected, a compound that binds to a polypeptide of Claim 8 is identified.

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16. A method for identifying a compound that binds to a polypeptide of Claim 8, comprising:

- a) contacting a compound with a polypeptide of Claim 8, in a cell, for a time sufficient to form a polypeptide/compound complex, wherein the complex drives expression of a reporter gene sequence in the cell; and
- b) detecting the complex by detecting reporter gene sequence expression,

25 so that if a polypeptide/compound complex is detected, a compound that binds to a polypeptide of Claim 8 is identified.

30 17. A method of modulating activity of a polypeptide of Claim 8, comprising contacting a cell that expresses the

polypeptide with a compound that modulates activity of the polypeptide for a time sufficient to modulate said activity.

18. A method of modulating activity of the polypeptide  
5 of Claim 8, comprising contacting the polypeptide with a compound that modulates activity of the polypeptide for a time sufficient to modulate said activity.

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